



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,882	12/02/2003	Yoshihiro Uetani	Q78640	1657
65565	7590	10/30/2007	EXAMINER	
SUGHRUE-265550			DESAI, ANISH P	
2100 PENNSYLVANIA AVE. NW			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037-3213			1794	
			MAIL DATE	DELIVERY MODE
			10/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,882	UETANI ET AL.	
	Examiner	Art Unit	
	Anish Desai	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 04 October 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.
 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-9 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 10/04/07.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____.

DETAILED ACTION

Applicant's arguments in response to the Office action dated 06/04/07 have been fully considered.

1. Claims 1-12 are pending. Claims 10-12 are withdrawn.
2. The objection to the specification is withdrawn in view of the amendment to the specification. The amendment to the specification received on 10/04/07 is reviewed and entered because it does not add any new matter.
3. The 35 USC Section 102(b) rejection based on Nakagawa et al. (WO/01/75991) is withdrawn because Nakagawa does not teach or suggest crosslinking polymer is not polymerized.
4. The 35 USC Section 103(a) rejection based on Yuji et al. (JP 2002-110245-machine translation previously provided by the Examiner) in view of Nakagawa et al. (WO01/75991) is maintained.
5. All of the previously made obviousness type double patenting rejections are maintained.
6. A new 35 USC Section 112-first paragraph and second paragraph rejections are made.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites “in a state that crosslinking polymer is not polymerized”. The recitation “crosslinking polymer is not polymerized” is a negative limitation and specification does not support this negative limitation. Any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) (“[the] specification, having described the whole, necessarily described the part remaining.”). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), aff’d mem., 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for exclusion. Any claim containing a negative limitation, which does not have basis in the original disclosure, should be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement (MPEP 2173.05(i)). As such the Examiner suggests deletion of the recitation “in as state that crosslinking polymer is not polymerized”. Since claims 2-9 depend from claim 1, these claims are rejected as well.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the molecule". There is insufficient antecedent basis for this limitation in the claim. For the purpose of the Examination, the recitation "the molecule" is interpreted as the crosslinking polymer.

Claims 3, 4, and 5 recite "other radical-polymerizable monomer" without specifying a particular type of monomer. It appears from the specification that the specification (page 7) discloses specific types of other radical polymerizable monomers. Thus, the limitation "other radical-polymerizable monomer" in the claims is open ended whereas the support for this limitation in the specification is finite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuji et al. (JP 2002-110245-machine translation previously provided by the Examiner) in view of Nakagawa et al. (WO01/75991) substantially as set forth in the previous Office Action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 and claims 1-17 of copending Application No. 11/267,404 and 10/569,417 respectively, substantially as set forth in the previous Office Action.

Response to Arguments

11. Applicant's arguments with respect to claims 1-9 have been fully considered.

The art rejection based on Yuji (JP'245) in view of Nakagawa is maintained for the following reasons. Applicant argues that JP'245 discloses a liquid polymer composition, which contains components other than the polymer injected between an electrode and a separator. JP'245 does not disclose that an unpolymerized polymer is

applied to the surface of the porous film substrate. The Examiner recognizes that JP'245 discloses injection of a liquid polymer composition between an electrode and a separator. However, the liquid polymer composition of JP'245 is not polymerized as evidenced by claim 19 of JP'245 which recites "A production method of the polymer solid-electrolyte lithium ion secondary battery which comprises (1) oxetane ring content polymer, (2) cationic initiator, (3) electrolyte solvent and (4) lithium electrolyte salt and the above-mentioned oxetane ring content polymer (1) injects the liquid crosslinkable composition...above-mentioned." (page 13 and 14 of the Machine Translation). Thus, to the Examiner the polymer solution containing the crosslinking polymer (i.e. oxetane ring containing polymer) of JP'245 is not polymerized when it is injected between the electrode and a separator. Further, the liquid polymer solution of JP'245 containing oxetane ring content polymer when injected between the electrode and the battery separator is interpreted as the polymer is applied to the surface of the porous film substrate.

Applicant argues that since polymer composition of JP'245 contains other components and since Nakagawa accomplishes its object by using a crosslinkable monomer solution and an important feature of the invention does not appear to be the method of application (i.e. impregnation or coating), one of ordinary skill in the art would not modify the process of JP'245 based on the disclosure of Nakagawa. The Examiner respectfully disagrees. As to the Applicant's argument that the polymer composition of JP'245 contains other components is not found persuasive because the claim language is open ended (note claim language of "polymer layer comprising a crosslinking

polymer"). Additionally, as previously disclosed on page 5 of 06/04/07 Office Action, Yuji discloses injecting aforementioned crosslinking polymer into the airtight container (i.e. battery), which has units such as electrodes and battery separator. Nakagawa teaches that as a method for inhibiting liquid electrolyte leakage there is known a method, which comprises incorporating a crosslinkable monomer in a liquid electrolyte, subjecting the liquid electrolyte to crosslinking reaction to produce a jelly solidified gel electrolyte, and then using the solid electrolyte comprising a solidified liquid electrolyte singly or in combination with a substrate as a separator (0004). According to Nakagawa such method has disadvantage because in the case of such a gel electrolyte, ions move through the gel at a very low rate than in the liquid electrolyte, easily causing an increase of internal resistivity of battery and drop of high rate discharge capacity. The resulting battery shows insufficient battery properties (0005). To overcome these disadvantages Nakagawa teaches a separator for battery' prepared by impregnating or coating a porous material (porous film/membrane) with a monomer solution comprising crosslinkable monomer (0071). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the porous film of Nakagawa as a battery separator in the invention of Yuji and form a polymer layer on the porous film as taught by Nakagawa, motivated by the desire to avoid increase of internal resistivity of a battery and drop of high rate discharge capacity.

Applicant argues that JP'245 discloses a lithium ion secondary battery, which uses polymer solid electrolyte, and on the other hand Nakagawa discloses liquid electrolyte. Since the battery disclosed in Nakagawa and the battery disclosed in

JP'245 are completely different, one of the ordinary skill in the art would not be motivated to combine both of the references. These arguments are not found persuasive because both references are in the same field of endeavor (i.e. lithium ion secondary battery). Additionally, to the Examiner, there would be a motivation to combine both of the references for the reasons set forth above. Accordingly, art rejections are maintained.

Conclusion

This Office Action is made Non-Final because the Examiner has introduced new 35 USC 112-first and second paragraph rejections, which were not introduced earlier.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth M. Cole/
Primary Examiner,
Art Unit 1794

/A. D./
APD